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## Synopsis

Pursuant to section 74 of the *Canadian Environmental Protection Act, 1999* (CEPA), the Minister of Environment and the Minister of Health have conducted a screening assessment of methanone, diphenyl-, herein referred to as benzophenone. Benzophenone was identified as a priority for assessment as it met categorization criteria under subsection 73(1) of CEPA. The Chemical Abstracts Service Registry Number (CAS RN<sup>1</sup>) for this substance is 119-61-9.

Benzophenone occurs naturally in the environment and is synthetically manufactured. It is used in Canada in a wide range of applications, including cosmetics, paints and coatings, adhesives and sealants, pest control products, inks, toners and colourants, and may also be used in inks used in some food packaging applications, as well as a flavouring agent in foods. In 2008, less than 1000 kg of benzophenone were reported to be manufactured in Canada, and between 35 000 and 135 000 kg were reported to be imported in Canada.

The ecological risk of benzophenone was characterized using the ecological risk classification of organic substances (ERC). The ERC is a risk-based approach that employs multiple metrics for both hazard and exposure, with weighted consideration of multiple lines of evidence for determining risk classification. Hazard profiles are based principally on metrics regarding mode of toxic action, chemical reactivity, food web-derived internal toxicity thresholds, bioavailability, and chemical and biological activity. Metrics considered in the exposure profiles include potential emission rate, overall persistence, and long-range transport potential. A risk matrix is used to assign a low, moderate or high level of potential concern for substances on the basis of their hazard and exposure profiles. The ERC identified benzophenone as having low potential to cause ecological harm.

Considering all available lines of evidence presented in this draft screening assessment, there is low risk of harm to the environment from benzophenone. It is proposed to conclude that benzophenone does not meet the criteria under paragraphs 64(a) or (b) of CEPA as it is not entering the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term harmful effect on the environment or its biological diversity or that constitute or may constitute a danger to the environment on which life depends.

Benzophenone has been reviewed internationally by the International Agency for Research on Cancer (IARC) and the European Food Safety Authority (EFSA). IARC

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determined that there is sufficient evidence in experimental animals for the carcinogenicity of benzophenone. Chronic exposure to benzophenone via the oral route caused cancer in rats and mice. Benzophenone was non-genotoxic in both *in vitro* and *in vivo* bioassays. For non-cancer effects the critical effect following oral administration in laboratory studies was effects on kidneys.

The general population of Canada may be exposed to benzophenone from environmental media, including food as well as from baby bottle uses. Products available to consumers, including cosmetics, and paints and coatings, are also sources of general population exposure in Canada.

A comparison of estimated levels of exposure to benzophenone associated with the use of certain products (i.e., nail polish and interior paint) and critical effect levels results in margins of exposure that are potentially inadequate to account for uncertainties in the health effects and exposure databases.

On the basis of the information presented in this draft screening assessment, it is proposed to conclude that benzophenone meets the criteria under paragraph 64(c) of CEPA as it is entering the environment in a quantity or concentration or under conditions that constitute or may constitute a danger in Canada to human life or health.

Therefore, it is proposed to conclude that benzophenone meets one or more of the criteria set out in section 64 of CEPA.